The
HEALTH EDUCATION
JOURNAL
A Quarterly for all who are interested in Health

VOL. V. APRIL 1947 No. 2

FULFILMENT OR SUBSISTENCE?

MOST people think of health as merely the antithesis of disease; so long as they are not ill, they consider they are well.

But this is too limited a view, too modest an ambition. Health is dynamic, varying in degree from individual to individual, and in the same person from time to time as he constantly adapts to his changing internal and external environments. Therefore, however good it is, it could always be better.

Health too is more than physical. It is a composite quality of body, mind and spirit; and its highest level is reached only when all three are harmoniously integrated and developed to the full within the limitations set down by heredity. Moreover, there must be reserves to meet emergencies—reserves of strength, adaptability, poise.

This calls for the nourishment and exercise of all the faculties as they mature. Unfortunately however, although few people in this country are now seriously undernourished in a dietetic sense, many are living on a starvation or subsistence level in other ways. While most bellies are tolerably full too many lives are empty. The unity of the human personality is constantly violated. Mind, body and spirit are dissociated. The body is neglected, and even spurned, by many of those whose occupation or interests regularly exercise their minds; the mind by many whose work and interests are predominantly physical. Large numbers—perhaps the majority—are, in general, content with second-hand activities; professional gladiators, professional thinkers, professional artists, professional theologians relieve them of the need to express and develop their own powers.

Yet man has an innate drive towards the maximum fulfilment of his inherited capacities; and if he fails, it is because his environment or training have restricted or distorted his development.

Here is an opportunity and a challenge to parents, teachers, nurses, doctors, legislators. As Gesell says, we must "make a joint effort to understand the ever-changing characteristics of the child at each advancing stage of maturity" and "adapt our practices and our expectations to the nature and needs of the individual."*

* Gesell, Arnold & Ilg, Frances L. "*The Child From Five to Ten*," Hamish Hamilton. London. 1946.

Hlth. Educ. J., 1947, 5, 50—55

RECENT 'DISCOVERIES' IN MEDICINE

By Lionel J. Bacon, M.A., M.D., D.P.H., *Medical Officer of Health, Bromsgrove and Redditch.*

The practice of medicine is built upon a series of sciences. It is a tower—a lighthouse: and the tower is a three-legged one. It stands upon the three basic sciences of physics, chemistry and observational biology ('natural history'). Upon these rest the applied sciences of anatomy and physiology: that is, the study of man in health—how he is made and how he works. These in turn support the study of pathology—the structure and function of man in disease. Upon pathology is built diagnosis—the art of detecting the nature of disease. At the tower head, resting upon diagnosis, is treatment—the purpose of medicine. From the summit there shines forth the probing beam of medical research. Historically speaking, no substantial advance has been possible in any field of medicine until developments in the more fundamental sciences have paved the way: thus only recently have extensive and systematic advances in medical treatment become possible, and it is the outstanding feature of recent 'discoveries' in medicine that they have so largely been in the field of treatment.

Advances in Treatment

A major medical discovery of the last century was of the part played by bacteria in causing human disease. By no means all disease is due to 'germs,' but a great deal of it is, and the discovery of the enemy at last made possible a rational attempt at treatment for germ-diseases.

At first antiseptics were used. They proved very useful for killing bacteria away from the human body; but almost useless in the treatment of disease, because they were as destructive to human cells as to bacteria. Next came the idea that since a person who had had a germ disease and recovered, did not usually develop it a second time, his blood might contain substances which would destroy bacteria or neutralise their poisons. So the blood, or serum, which is the blood with the clotted corpuscles filtered off, of persons convalescent from an illness came to be used to treat others suffering from the same illness. As a next step 'antitoxin,' the substance in the blood of an immune person which neutralises the bacterial poison, was produced artificially by giving the disease to animals and using their serum. The outstanding success of this in the treatment of diphtheria showed that a revolution in treatment had been achieved:

and in some other diseases, such as tetanus and meningitis, a large measure of success was attained by the same methods.

Simultaneously another line of attack had been worked out: it was felt that if enough was known about the chemistry of bacteria it should be possible to find chemicals which would destroy them without destroying human cells. The first success in this field was the discovery in 1909 by Ehrlich of the drug known as salvarsan (' 606 '), which proved capable of killing the spirochaete which causes syphilis. It was not perfect —it was somewhat dangerous, and treatment was prolonged and uncertain—but it was a start in a great new field. The next big advance in this field was the discovery in 1935 of the dye known as prontosil, which proved lethal to many of the disease-producing bacteria, particularly those known as the cocci. Prontosil has since been superseded by a large number of allied drugs, known collectively as the ' sulphonamide ' drugs, of which ' M. and B. 693 ' is perhaps best known to the public. Between them, these drugs have brought under control a wide range of diseases, including septicaemia (' blood-poisoning '), meningitis, scarlet fever, erysipelas, puerperal fever (' child-bed fever '), gonorrhoea and pneumonia.

Medical treatment has become an effective science at last!

Sulphonamides are not the last word. Many diseases are untouched by them. Even in the diseases for which they are usually effective, they sometimes fail—it seems that individual strains of bacteria can resist them. And they can be poisonous ; they require care in use.

New Methods

Then came penicillin. The story is well known. A bacterial culture-plate accidentally contaminated by a mould: bacteria absent from an area round the mould: the realisation that some diffusible substance from the mould was lethal to bacteria: its isolation, purification, large-scale production in the stress of war: penicillin.

Penicillin has the great advantage over the sulphonamides of being as nearly non-poisonous as any biologically active substance is ever likely to be. Furthermore, it attacks some bacteria which resist sulphonamides —syphilis, gas-gangrene and anthrax are examples. But there are ' snags.' It is expensive to prepare ; difficult to purify, sterilise and store ; and it rapidly deteriorates. It has to be given (except for surface infections) by repeated injections, which are liable to be painful. And there are still many infections which are untouched by it.

The latest discovery in this field of ' antibiotics,' as they are called, is streptomycin. This is similar to penicillin, but is different in the range of bacteria it attacks. A large and important group of disease-bacteria is the group of ' bowel-bacilli,' which cause such diseases as typhoid,

dysentery, food-poisoning and some bladder infections. Penicillin and the sulphonamides are of limited use against these ; but streptomycin promises to be effective. The main promise of streptomycin, however, is in the treatment of our greatest bacterial enemy—the tubercle bacillus. Work is still in the early stages, and cautious people are not convinced that a cure for tuberculosis is found : but there is hope.

Broadly, we may say that the chemicals and antibiotics have given us the measure of our bacterial enemies. But it is necessary to add a word of warning : many diseases are as yet untouched by these substances—in particular the great group of diseases due to the ultramicroscopic viruses which include, among many others, measles, smallpox, influenza, yellow fever, infantile paralysis and encephalitis.

Prevention by Injection

Recent advances in the control of infectious disease are not limited to treatment. Prevention, too, can claim its triumphs. Serum from convalescent patients is used to protect the contacts of disease, particularly of that much-despised ' childish ailment,' measles, which as a matter of fact is the major killing disease of children between the ages of one and five. Such protection is short-lived and usually one aims, by adjusting the dose, to attenuate the disease rather than to prevent it wholly.

More lasting protection is achieved by injecting into the patient either the germ itself (killed, or in a form too weak to cause infection) or the poison extracted from it. The patient responds by producing ' antibodies ' (neutralising substances) in his own blood, and so achieves a lasting immunity. The first example of this was vaccination against smallpox ; that is not a ' recent ' development—it was achieved in 1792 as a more or less chance observation—but it was long in advance of its time ; and understanding of the principle underlying it, and hence its application to other diseases, belongs to our century. Preventive control of typhoid in the 1914–18 war disarmed a foe more deadly than the human enemy. In the inter-war period immunisation against diphtheria became a reliable procedure, and its intensification during the recent war is now well known : diphtheria has dropped rapidly alike in incidence and mortality since this immunisation became popularised.

Immunisation against whooping-cough shows promise, but it is not yet a certainty. A recent development in this matter is the discovery that whooping-cough is really two diseases (that is, two different varieties of bacterium can cause it)—and this may account for the diverse results that different workers have had in their attempts to immunise against it.

Two war-time achievements in the immunisation field have been the development of efficient vaccines against yellow-fever and typhus fever.

A Weapon Against Insect-Borne Infection

This brings me to another recent development, which some people regard as more far-reaching even than the discovery of penicillin. Typhus fever is spread by lice: to vaccinate against it is a valuable measure in special circumstances—but how much more rational to kill off the lice!

This has now been made a practical possibility by the discovery of the remarkable insecticidal properties of ' D.D.T.,' a chemical long known. It is lethal to all or nearly all insects, although the dose needed varies ; its effect lasts for weeks ; and it is remarkably non-poisonous to animals, including the human animal. It is also reasonably cheap. The potentialities of D.D.T. are colossal. It abolished the body-louse as a threat to the armed forces in the recent war, and cut short the Naples typhus epidemic in a manner which was without precedent. Now it is available to attack the ubiquitous head-louse in civil life ; and to clear away that obnoxious beast, the bed-bug. Its use against mosquitoes which carry malaria made possible effective warfare in some places in the Pacific zone where malaria would otherwise have made it impossible : if in war, why not in peace? Above all, it is now in our power to conduct an effective campaign against our worst (and most neglected) insect pest, the common house fly, which rivals man and the rat as a contaminator of food.

It has been said that insects are man's only serious rival in world supremacy. If so, we have a weapon to hand which will destroy that rival—if we don't destroy ourselves first.

Our Increasing Knowledge

I have space for only the briefest reference to a number of other recent developments. When we have destroyed the last mosquito, malaria will go. But in the meantime we must treat the disease. Quinine has been the standby for three centuries—one of the few early rational remedies. The Japanese took our supplies. Chemical substitutes, notably mepacrine and paludrine, were developed which have proved better than quinine. Further, by giving them in small regular doses malaria can be prevented or suppressed.

Cancer is an unsolved problem : a vast accumulation of recent knowledge as to its cause and nature awaits clarification : the key is missing. But in one kind of cancer—cancer of the prostate gland—an effective form of treatment has been found. That is, a treatment which causes retrogression of the disease, relief of symptoms, and in a small proportion of cases apparently lasting cure. This is the substance known as stilboestrol, and the interesting thing about it is that it is what is called an ' oestrogen '—that is to say a substance having the action of the female sex-gland. Yet the prostate is a male gland!

There has been an enormous increase in our knowledge of the endocrine (ductless) glands: they seem to control our chemical make-up as the nervous system controls our physical make-up. There have been some practical results of this knowledge. Some of the gland-secretions have been isolated and purified: some have been imitated by synthetic substances, of which stilboestrol is one. So if the gland fails to secrete we can in some instances make good the loss. The use of insulin in diabetes is the great example of this; a recent refinement has been the use of insulin so modified that it is slowly absorbed, so that fewer injections are required. Another example is the use of thyroid gland extract in cretinism and myxoedema to replace failure of the gland. Apart from this 'substitution therapy,' as it is called, many attempts are being made to modify the 'body chemistry' by the use of gland extracts and hormones, particularly the complex system of hormones concerned in the female sex cycle. Broadly, it is true to say that promise is great but achievement little, in this field.

Vitamins have come into prominence increasingly as our food has become more 'purified.' If we ate our foods in a more natural and less sophisticated condition, we shouldn't have to worry so much over vitamins! An interesting recent discovery is that some of the vitamins are produced by bacterial action in the human bowel; and deficiency may arise because of a diseased bowel in which the wrong bacteria flourish. New-born babies, with no bacteria in their bowels, are entirely dependent on their mothers for their vitamin supplies. One vitamin, known as 'K,' is necessary to prevent haemorrhage, and the condition 'haemorrhagic disease of the new-born' is now known to be due to deficiency of vitamin K, and can be prevented by administering it to the mother before birth.

Another important discovery in relation to new-born babies is the cause of the serious disease known as jaundice of the new-born, which causes many infant deaths and still-births. It is due to incompatibility between the baby's and the mother's blood in cases where the baby inherits from its father a factor known as the Rh factor, which the mother lacks. To find the cause is not to have found the cure—but it is a step towards it: and even now infant lives are saved by having ready appropriate blood for transfusion to babies born of parents whose blood is incompatible.

Research Continues

These are but a few of the many recent discoveries and developments in medical science. There is continuous progress in every field; and it may be that a doctor whose special interests are different from mine would have selected quite different material.

Let it not be thought that perfect health and long disease-free life for all mankind are almost in sight! An enormous field of disease remains unlit. New diseases may arise—possibly are arising almost from day to day. The major cause of death in this country is degenerative disease of the heart and arteries: we are powerless to check it as yet. Cancer follows close behind: it baffles us. Millions of man-hours are lost yearly from that ill-defined group of crippling diseases called ' rheumatism ': we are ignorant of their cause and nature.

Yet the future of medical treatment is full of hope and promise.

CONCERNING THE PLAYING OF GAMES

When to play

Games are to be played for recreation of mind and body. They should be played, therefore, as relaxation after work and for the recreation of the body.

With whom to play

Companions in games should be of like mind and stature. They should be such as can play fairly and without loss of self-control.

What to play

The game should be one well known to all taking part in it. It can be of no use or pleasure if the rules are not known by all. There must be some skill in it to balance chance.

How to play

The game should be one of chance common to all. No harm will result to anyone if it is lost provided that it has been played well, without anger or hatred. Obey the judges as they are the sole witnesses of the game. Their word is law, and the law cannot err.

How long to play

Play should continue until the mind is refreshed and restored to work and the body tired but not wearied.

Juan Luis Vives (1492–1540).

Hlth. Educ. J., 1947, 5, 56—59

METHOD IN HEALTH EDUCATION—II GETTING THE TOPIC OVER

By Arthur Pinsent, M.B.E., M.A., B.Sc., *Senior Lecturer, Department of Education, University College of Wales, Aberystwyth.*

In a previous article* I discussed certain principles relevant to the problem —How to be interesting, particularly with reference to choice of topics to suit particular audiences. Here I want to consider the other major problem in method—How to be clear.

Effective Presentation

A necessary condition for *developing* interest after it has been caught, is the establishment of a feeling of mastery, of a conviction that one is making some progress. Nothing damps down interest and spontaneous effort so much as the humiliation and frustration caused by failure to grasp clearly and understand. What, then, are the main conditions for clear apprehension and adequate understanding?

We are concerned here with the course of intellectual development and certain general rules can be stated. All knowledge begins with, and must be developed from, direct acquaintance with the environment through the sense organs. In no other way can the primary mental imagery upon which meaning ultimately depends, be acquired. Then new knowledge, at any stage of development, is grasped, interpreted and assimiliated in terms of the learner's existing knowledge system. Lastly, the learner's immediate response to any given situation (the items singled out for attention and the significance attached to each) will depend on what may be called the ' mental set,' the group of ideas and expectations which happens to be uppermost in consciousness at the moment.

Some time ago I came upon the words ' alopecia areata.' Completely puzzled, I got to work on a medical dictionary and I gathered that I had found the medical jargon for ' hair falling out in patches.' This set of common words immediately called up a corresponding set of primary images based on first-hand experience. These images then became associated with ' alopecia areata ' and the technical term acquired a meaning.

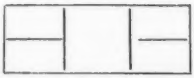
Great care is necessary in dealing with less literate working-class audiences. Many working-class women will be mystified by ' menstruation,' but they will know exactly what their ' poorly periods ' are. In discussing sex and health matters generally, one needs to be colloquial as well as technical.

* *Hlth. Educ. J.*, 1947, **5**, 41–44.

" The objectification of God in each derivate actual entity results in a graduation of the relevance of eternal objects to the concrescent phases of that derivate occasion."

This quotation is taken from a standard book of modern philosophy and not from a case-book on lunacy. A well-read layman could give a reasonably adequate account of every single word in the passage and then be at a loss to explain its total significance. That would require a background of modern philosophical thought. The statement is too abstract for ordinary comprehension. I suspect that some of the professional philosophers are not too sure about its exact purport.

The influence of the ' mental set ' could be seen by mentioning the word ' tackle ' to a crane driver who is also a fisherman and a rugby ' fan.' What he makes of it will depend on which of his three interests happens to be uppermost at the moment. For our purpose it is instructive to note that an appropriate ' mental set ' can be organised deliberately by suggestion or instruction. If I say, " What do you make of the following diagram? "



I may get as many different responses as there are readers. If, however, the instruction is " Look for the initials of the writer of this article " most readers will soon see the diagram in the way desired.

What has been said about technical terms and abstract statements applies equally well to diagrams, maps, plans, statistical charts and graphs. Even to some adults as well as children, these objects may be complete mysteries. Therefore in the case of younger children and non-technical adults it is desirable to use pictorial charts rather than abstract diagrams. Even solid models can be very puzzling to the uninitiated.

We must take careful note of the first-hand experience and effective vocabulary of an audience. Generally speaking the younger and/or less literate the audience the more necessary is it to present the material as far as possible in concrete, visual, pictorial form. For young children, the best modes of instruction are games, make-believe plays, puppet shows and illustrated stories.

Common Forms of Instruction

Four common forms of instruction are the Health Talk ; the Demonstration ; the Discussion ; the Information Corner.

The main object of the health talk is to put across information. In preparing the talk one should ask and endeavour to answer the following questions: How introduce it? How illustrate it? How get the audience to participate (if this is at all possible)? How finish?

An effective introduction is essential. It should suggest the nature of the topic, organise an appropriate ' mental set,' suggest a use for the knowledge and constitute a personal challenge to the listeners. An intriguing title is invaluable. Compare, for example, the attractive power of " Genetic Factors in Intellectual Ability " with " One Million English Born Feeble-minded." In developing the talk, begin with something with which the audience is familiar. Good teaching, like charity, should begin at home! Proceed so that each step prepares the way for the apprehension of the next in order. Do not overload the talk with detail. Finish with a clear summary and, if possible, a short ' slogan ' which the audience can remember easily and take away.

In the case of the demonstration, the main object is to promote acquisition of skill. The procedure falls easily into four ' steps.' (1) What is to be done, and why? The learners should have as clear as possible an idea of what they will be required to do, and the purpose of it. (2) How should it be done, and why? Complex processes must be broken down into simpler components which are then presented in an appropriate order. (3) Supervised practice and correction of errors. (4) Adaptation of the skill to a variety of circumstances.

The object of the discussion is not to present new information, but to encourage the expression of different opinions, to clarify ideas and arrive, if possible, at an agreed conclusion. Some first-rate examples of discussion methods can be found in the Current Affairs pamphlets.*

The object of the Information Corner can best be described as " learning while you wait " ; and the place for it is where people have to wait, in waiting-rooms of hospitals and clinics. The device may consist of a few posters or cartoons (funny ones if obtainable) illustrating some health topic ; pictorial illustrations of health statistics ; a ' quiz ' ; puzzles. The ' quiz ' and puzzles constitute a challenge. Many people hate to be beaten even by a question. To vindicate themselves they will often spend considerable time and trouble in finding an answer, whereas they would ignore completely a plain statement of the same fact. Moreover a ' quiz ' or puzzle will often start a discussion. In organising an information corner, do not forget the attractive value of bright, cheerful colours.

Manner, Manners and Mannerisms

In conclusion, a few ' tips ' for the teacher or lecturer. Be friendly, cheerful and, if possible, humorous (with due moderation). Speak clearly. Avoid a monotonous delivery. Vary the tempo and emphasis to suit the value of the words. Suitable gesture helps to emphasise important points.

* See particularly No. 3, May 18, 1946. *Health of a Nation* by Richie Calder. Bureau of Current Affairs, 117, Piccadilly, W.1.

Look at the audience ; speak to the audience and not to the floor, the blackboard, or your notes. Avoid sauntering aimlessly to and fro while you soliloquise. Some lecturers just think aloud while their audience deplores the fact that the police take a serious view of manslaughter. Do not be ' snooty,' superior, sarcastic or patronising.

Manner and manners are most important in establishing an intimate friendly *rapport,* particularly with adolescents and working-class audiences. Only too frequently they have been conditioned to patronage, and they hate it.

CITY OF LEEDS HEALTH EDUCATION CENTRE

By John F. Warin, M.D., D.P.H., *Deputy Medical Officer of Health, Leeds*

The Leeds Committee for Social Hygiene and Health Publicity, which is a voluntary body comprising members of the city council and representatives of various organisations interested in health, recently felt that the time was opportune for an expansion of health education work in the city.

After a number of ideas had been discussed it was decided to experiment by opening a Health Education Centre. The premises eventually secured are ideally sited in the centre of the city and are suitable in every way except that the accommodation is rather restricted. They comprise a ground-floor room having extensive shop window space suitable for display purposes and a basement which has adapted amazingly well into a very cosy cinema seating 50 persons.

The aim of the centre is to cover as far as possible the field of health education in a series of twelve fortnightly displays, each devoted to a separate subject. Films relating to the subject material of each display will be shown in the cinema.

The centre was opened by the Lord Mayor of Leeds on January 10, and has already aroused considerable interest. The hours of opening are 10.30 a.m. to 6 p.m. on Tuesday, Thursday and Saturday. 12 noon to 8.30 p.m. on Wednesday and Friday. Film shows lasting about 45 minutes are given at hourly intervals.

The opening display dealt with Healthy Babies, and subsequent displays will have the following titles: Healthy Homes, Prevent T.B., Exercise and Health, Prevent V.D., Healthy Children, Prevent Infection, Food and Health, Your Teeth, Mental Health, Your Eyes and Ears, Nursing.

It will be most interesting and instructive to watch the development of this experiment.

Hlth. Educ. J., 1947, 5, 60—63

WORLD ASPECTS OF NUTRITION—PART II

By H. E. Magee, B.Sc., M.B., B.Ch. (Belfast), D.Sc. (Aberdeen), *Deputy Senior Officer (Nutrition), Ministry of Health.*

The production of the maximum energy in the form of vegetable foods for human consumption is a more difficult problem than that discussed in Part I of this article* because much depends on climatic and soil conditions. For instance, there are parts of these Islands where wheat cannot be grown ; there are others where rye is more productive than wheat or barley and others where potato growing is not successful. If we try to take into account the world in general, the matter becomes very complex. Restricting our attention to these Islands, however, there are certain general principles to bear in mind. Potatoes produce more energy per acre than wheat, and some kinds of vegetables, such as cabbage, are superior even to potatoes. Doubtless, similar principles apply to other countries and are well known to the agriculturists in those countries. Some countries can produce more food value from growing maize than wheat, for example Africa and certain parts of the American continent. In others rice is the most profitable crop, in others peanuts, in others the soya bean and so on. Each country has its own most suitable vegetable food. For these Islands and for most temperate climates the potato is the crop which yields the best all-round value. Although wheat and other grains do not yield so much energy as many kinds of vegetables, the demands of crop rotation have to be taken into account, also food habits and the capabilities of the human digestive system. It is not possible for man to obtain any more than a small fraction of his energy from green vegetables. His digestive system could not handle the large bulk required if he attempted to secure all his energy from green-stuffs.

How Much Food Does Man Need?

The smallest amount of food on which man can live has been much in the news of late. We have been told that Germans, Austrians, Indians and others have been living on diets providing about 1,500 and even less than 1,000 calories daily. People who have been to these countries have related how well the majority of the inhabitants look except for adults, especially men, who look rather lean. We in this country naturally ask ourselves what truth there is in these statements. We are interested to know whether these quantities represent the total diets consumed and, if this is true, whether they are sufficient for human requirements. Con-

* *Hlth. Educ. J.*, 1947, **5**, 12–15.

sequently, we also wonder whether our present food consumption, which is roughly 2,300 calories per head daily, is too high and whether health would be improved by eating less. People who have been to Germany have been impressed with the apparently fresh and clean appearance of the inhabitants they have seen walking about. They are, therefore, somewhat confused and wonder whether what the physiologists have said about human food requirements is true.

The average healthy adult man at rest uses up about 1,600 calories per 24 hours. If he were given food containing exactly this amount of energy, output would not be balanced because the food utilised would by itself stimulate the production of an extra 10 per cent or so of energy which would have to be supplied by his own body. This stimulating action of food, the specific dynamic action, generally amounts to about 10 per cent of the energy ingested. Therefore, the adult man in a condition of complete rest requires about 1,800 calories daily in order to keep in energy equilibrium. It is this figure which seems to be challenged by recent statements in the press and elsewhere.

An Experiment

The figure has been tested out recently by some American investigators. They obtained 36 volunteers who were kept on a diet of 1,764 calories daily for six months. They were given certain scheduled duties to perform and their requirements were about 3,150 calories. After six months they had lost about 25 per cent of their original weight and all desire and much of their capacity for work. Outstanding features were introversion, loss of interest in others and in their surroundings, depression, loss of ambition and of desire to exert themselves physically or mentally. Total strength fell by 28 per cent and endurance by 86 per cent. The pulse and respiration rates were slowed, haemoglobin and blood pressure fell and the basal metabolic rate (B.M.R.) fell by as much as 40 per cent. The depression in the B.M.R. is a clear indication that all the processes of life were reduced. This always happens in starvation ; it is nature's way of economising the body's reserves. Underfed people sleep much more than usual and when awake they are drowsy and apathetic.

After the period of semi-starvation, the subjects of the American test were put on rehabilitation diets, but recovery was very slow and was not complete even after three months. The slowest thing of all to recover was endurance.

It is clear from these tests that diets of 1,700 to 1,800 calories daily are quite insufficient for adult men doing moderate work. Much confirmatory evidence has come from prisoner-of-war and internment camps, including those where the prisoners were not called on to do any manual labour. Therefore, if there are, in fact, people in Germany or elsewhere

getting less than the energy requirements as enunciated by physiologists, then their life is being maintained at a subnormal plane, that is they are apathetic, unambitious, without initiative or desire for work and they lose weight. It has to be remembered, too, that the official rations, as stated, take no account of the black market, of hoarding, of garden produce or of vegetables and other unrationed foods obtained in other ways. Moreover, the numbers of apparently fit people seen walking the streets tell us nothing about the numbers who may be unable or unwilling to walk the streets. In short, Germans, Austrians and others need just as much energy, proteins and other nutrients as we do to live. You may also have observed that the Food and Agriculture Organisation has laid down as a broad general rule that food supplies for Europe should not be allowed to fall below 2,000 calories a day. This they regarded as the " minimum subsistence " level and urged that a level of 2,200 calories should be attained at the earliest possible date. This they call a " temporary maintenance " level which they regard as insufficient for full health, vigour and efficiency.

You may ask whether medical science can do anything in the absence of food to stave off starvation and to prolong life. The answer is simple —nothing. You may ask what about vitamins. You might as well try to run a petrol engine by putting lubricating oil in the sump. In fact, there is evidence that the giving of extra vitamins to people not getting enough food might be harmful. The functions of vitamins are to enable the body to assimilate and transform other nutrients, for example, energy-giving nutrients and minerals. If no, or insufficient, food is consumed and extra vitamins are given, we can only guess at what may happen, but in view of the evidence which has come forward, it is not a risk which we should freely take. Drugs obviously cannot take the place of food ; all we can do is to try and make starving people's lives as comfortable as possible, by providing hospital accommodation if it can be had and by treating symptoms as they arise.

Except for tuberculosis and perhaps certain other diseases, there is no definite evidence that starvation by itself makes people more susceptible to infection. There is, however, an impressive amount of experimental material on laboratory animals indicating that malnutrition induced in various ways makes animals more susceptible to various types of infection. It would be a mistake to ignore this evidence, notwithstanding the lack of definite evidence on the human side. The greatest risk of spread of infectious diseases amongst and from semi-starved communities is that which derives from the inevitable apathy, which prevents people looking after themselves and after their fellows ; the elementary laws of hygiene are liable to be ignored and forgotten, thus establishing ideal conditions for the spread of infectious disease of various kinds.

Looking to the Future

Let us now try to look into the future beyond the period of shortage. The many problems of world nutrition can be condensed into three major questions ; namely, the production of sufficient food for health, its distribution according to need and, finally, the arrangement of the social and economic affairs of the world so that everyone will be able to get sufficient food for his needs. This is not Utopian idealism—it is plain justice. Every child, wherever he is born, has a right to sufficient food, clothing and shelter to enable him to attain that measure of health and physique which is his natural heritage. It is not in the order of nature that some people should be stunted, deformed or unhealthy because they cannot get the wherewithal to be otherwise. All of us, whatever our colour, race or nationality, are members of the great human family ; and while each of us has an inalienable right to the essentials for good physique and a full and healthy life, each of us, equally, has a corresponding duty to see that nowhere does mankind suffer from lack of these essentials. This means that we must see to it that enough food, and of the right kinds, is produced to feed the whole world. This is the job of F.A.O., and from my knowledge of the present Director General, I am convinced that he wishes his organisation to work towards this end.

In the future, which we are trying to envisage, we cannot tolerate millions of undernourished, deformed and starving people such as existed before the war, for example, in many parts of Africa, Asia, and even in more fortunate countries. This means that (*a*) enough of the essential foods must be produced, (*b*) reserves must be laid aside to cover deficits due to bad harvests or epidemic disease, (*c*) there should be free exchange of all foods between countries and (*d*) distribution should be carried out according to physiological needs. We may be told that these things cannot be done because they do not fit in with the so-called laws of economics. Solemn and impressive arguments may be brought forward to prove the impossibility of applying these principles. If the so-called laws of economics have the inevitable effect of condemning to malnutrition and misery sections of the human race in any land, then the less these laws of economics have to do with human affairs the better. The dominant principle should be the oneness of the human family.

During the war and since we have developed new methods of preserving, packing, storing and transporting foods. We were able successfully to feed fighting men living in the greatest extremes of temperature and climate. We can draw on this experience, if we will, for building up emergency reserves of food and for feeding ill-nourished people wherever they may be. It is the duty of all the nations of the world, especially the more enlightened, to bend themselves to this task.

Hlth. Educ. J., 1947, 5, 64—66

THE PREVENTION OF BURNING ACCIDENTS IN THE HOME

By Leonard Colebrook, M.B., F.R.C.O.G., F.R.S., *Member of the Scientific Staff of the Medical Research Council. From the Birmingham Accident Hospital.*

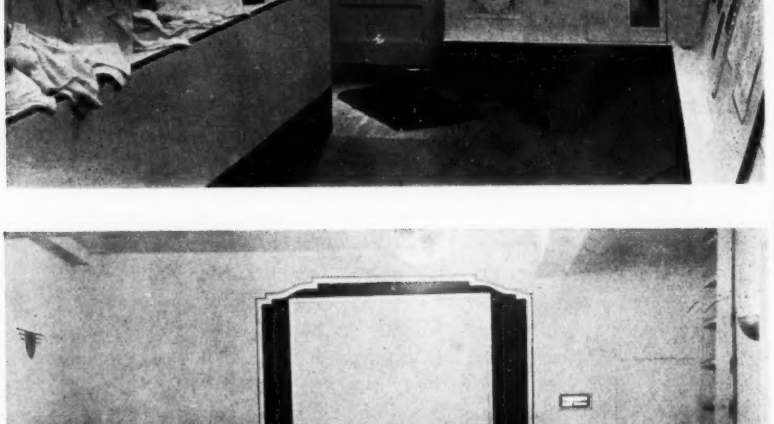
One million people live in Birmingham, and each year more than 1,000 of them suffer from a burning or scalding accident severe enough to require treatment at a hospital. Five hundred of them have to be admitted as in-patients. From 1930 to 1939, and also in 1945, about 30 of these accidents in each year proved fatal—and about half of the victims were children.

There is no reason to suppose that these figures are in any way peculiar to Birmingham—on the contrary it is probable that in some cities where the housing situation is worse, the accident and death rate from burns and scalds may well be higher. The number of these accidents requiring treatment as in-patients of our hospitals throughout the country is estimated at something like 22,500 a year. Recovery from these injuries is notoriously slow, so that a million, or rather more, hospital bed-days are occupied each year in Great Britain in the care of these burned patients. In terms of hospital personnel, doctors, nurses, engineers, porters, clerical staff, that represents quite a formidable expenditure of manpower. In this connection one should remember, too, the dislocation in many homes when the mother has been burned and there is nobody to care for the children ; and also the time of busy mothers taken up in visiting their burned children in hospital, or taking them for treatment as out-patients. The loss of manpower in industry due to burning accidents in England and Wales has been estimated at something like 625,000[1] man-days.

Looked at from another angle, the importance of preventing these injuries has acquired a new urgency. Before the war most of the severely burned people used to die—now many of them recover, even the children, but they recover with badly damaged bodies, seriously handicapped in the battle of life and often doomed to much unhappiness.

The Social Problem

The large majority of these accidents—about 80 per cent hitherto—have happened in the home. The teapot and the home fire have been more deadly than the great blast furnaces and smelting plants because the workers in industry are guarded by all sorts of protective devices and regulations. It is not so in the home.



City of Leeds Health Education Centre

(See page 59)

Young children are the commonest victims. The death rate for the first five years of life is nearly as high as for the subsequent 60 years. The death rate for children under five from burns and scalds is considerably higher than that for road accidents. During the years 1935 to 1939, 2,248 children of this age group died from burns, 1,466 from road accidents.*

Girls tend to get burned ; boys scalded. The preponderance of scalds among boys is usually attributed to greater adventurousness or curiosity ; burns among girls to their more inflammable and looser clothing.

In old age, too, the accident and death rates rise steeply : the old people fall on the fire or their clothing becomes ignited, or they spill hot water over themselves.

Housing and living conditions play a very important part. Statistical proof of this is not available (an investigation on the point would be worth while), but there can be no doubt that a large proportion of the burning and scalding accidents happen in the over-crowded homes of the less fortunate social classes. It is easy to see why this should be so. In these homes there is nowhere for the smaller children to play, except near the fire. A fireguard gets in the mother's way ; and it costs money. Many homes have none, or they are of unsatisfactory design. The low grate, with its saucepan and kettle on shifting coals, the gas-stove and oven (often used for heating the room nowadays) are all within range of the exploring child of two to five. Tea-cups and tea-pots are fair game even for the under two's sitting up to the table—and they produce many serious scalds.

Along with these circumstances favourable to mishaps, there is often, of course, a predisposing human factor. The over-crowded and often squalid homes of the poor cannot be expected to produce responsible, careful citizens. It is not surprising, therefore, that the story behind a burning or scalding accident all too frequently suggests a lack of reasonable precautions—sometimes even of gross carelessness. On the other hand, it must be recognised that with the best will in the world the over-worked mother—whatever her home circumstances—cannot watch her children all the time and must often leave them while she goes out. Often, too, her patience must be strained to breaking point by the child who will not learn ' heat sense ' and is always ' looking for trouble.'

On a broad view then, we can only hope for a large-scale reduction of these accidents as housing and living conditions are improved. That improvement must needs be gradual. Meanwhile, it is clear that many of these tragic happenings could be avoided if public opinion, in a wide sense, was aroused as to the need for preventive measures.

* I am told that the figures for 1945 recently published show a relatively higher figure for road accidents in this age group. The change, if maintained, may be partly due to improved results in treatment of burns.

Heat Sense

The development of ' heat sense '—greater awareness of the dangers associated with fire and hot water—should be the first objective when considering preventive measures. Clearly we need a different plan for very young children and for older children and adults. This is a task in which all concerned with health education can play a part.

For the very young children we must work out what is the best technique for teaching ' heat sense '—and then popularise it. The child psychologists should be able to help here.

For the older children and adults we need a nation-wide propaganda campaign by film ' flashes ' in cinemas ; by longer instructive films shown in schools, women's institutes, clinics and the like ; by well-informed and frequent notices in the Press calling attention to burning accidents ; by magazine articles, and by exhibitions dealing with technical advances making for home safety. The interest of Scout and Guide leaders should be encouraged, since the older children could help the mothers in protecting and educating the very young children. It has been suggested, too, that the principle of wardenship which served us so well during the war might be applied to this problem of home safety.

Safety Devices

It seems reasonable to suppose, from available statistics, that more than 50 per cent of fatal burning accidents would have been averted if fires had been provided with a fixed guard.

Those for open fires should be substantially made and pleasing in design. They should be provided with means for fixing them, such as by a hook and staple to the wall on either side of the fire so that a child cannot push them over ; and even a means of locking them in position when the mother has to go out. For electric fires the single or double bars so commonly provided are quite inadequate. The fires should be completely covered* with a wide mesh guard fixed to it as on board ship *and standing away at least 2 in. from the element.* It is often not realised how easily such a guard can be improvised for existing fires by simply wiring on a cake tray or griller. It is to be hoped that the manufacturers of electric and gas fires will shortly take the initiative in providing satisfactory fixed guards on new models, and in marketing easily attachable types for existing fires. It would help the buying public if safe and pleasing designs could carry the official approval of the Council of Industrial Design or Good Housekeeping Institute.

Most of the deaths from burning accidents to-day are due to clothes catching fire. Clearly many of these severe burns would not happen if

*Such protection is required by law in some of the Scandinavian countries.

the public was able to buy, and was buying, less inflammable materials. The great variation in inflammability of common dress materials is not sufficiently realised.

As an experiment, pieces of material one inch square were held vertically by a metal clamp so that one edge was just resting on the element of a cold electric fire. The results showed that thin cotton cloth, flannelette, winceyette, interlock, and celanese were in flames between eight and thirteen seconds after switching on the current. Pure wool (woven), artificial silk, and satin smouldered or curled away from the element, and on being brought back to the element burst into flame after intervals of between forty and fifty seconds. Flannel charred after five seconds and *did not burst into flame* even after putting back on the element.

For greater safety from fire, therefore, it is evidently desirable that woollens should be more widely used or, alternatively, that cotton materials should be rendered fire-proof. Research with this latter aim in view has been in progress for some years, but until now it has not been possible to overcome the difficulty that the materials used for fire-proofing disappear in the laundry. The buying of cotton fabrics has been largely determined by necessity during the war years since woollens have not been available. How far the public choice could be directed towards the safer materials in the post-war years is a question involving economic and other issues which I am not qualified to discuss.

Every housewife must be familiar with the manifold heat hazards associated with cooking operations—spluttering of hot fat, release of steam and hot air from ovens, upsetting of saucepans—but safety devices are not an outstanding feature of most kitchens. Sunken wells for saucepans on the top of gas and electric stoves should reduce the risk of scalds and have, I believe, been suggested in the past, but they are not in common use. Presumably there is a conflict here between labour-saving (the avoidance of lifting heavy pots) and safety. Is there not room for a compromise if the two ideals cannot be reconciled? I would suggest also that thin fire-proof gloves with a gauntlet might perhaps be used to advantage in handling the hot oven.

First Aid

Experience emphasises that many people, when their clothes catch fire, ' lose their heads ' and run out of the room to a neighbour, or into the street. Although the urgent need to smother burning clothes in a rug or blanket has been taught for many years to those who attend First Aid lectures, it has not got home to a large portion of the community. Regular instruction in schools, with repeated cinema and Press publicity, should be of value here.

The urge to put *something*, no matter what, on to a fresh burn in the hope of relieving pain has been responsible for a great deal of harm. It has not been realised, even by the teachers of first aid, that the greatest danger for the burned patient, apart from 'shock,' is that of septic infection, and that such infection may easily be conveyed by the well-meaning friend working with unwashed hands and wearing no mask as he puts on this or that first aid preparation which usually has little effect. Contrary to the general opinion the pain of burns is often slight and quickly passes. In such cases it requires no treatment. If it is severe, cold water is the best means of relieving it temporarily. Tap water in most of our big cities is free from the microbes of septic infection, and no harm will be done by holding the burned area directly under the tap where this is possible. For the rest, first aid should consist only in covering the burn with a piece of sterilised linen to prevent its contamination while on the way to a hospital or doctor. Every home should keep one or two pieces of sterilised linen for just this emergency.* For severe burns, no first aid should be attempted (except an injection of morphia by a doctor, if required). The first consideration in such cases should be to get the patient to a hospital with the least possible delay.

Hospital Care

Although this article deals primarily with the prevention of burns, those concerned with health education will also be interested in the care given to these injuries at hospital. The war years have brought great progress in their treatment. We are now able to save many who used to die from 'shock,' and the danger of septic infection can be greatly reduced. But these better prospects for the burned patients will not be realised to the full in civilian practice unless special provision is made for their treatment. The pre-war arrangement of taking a few burns into the ordinary wards of every general hospital can no longer be considered satisfactory. Centres are required in our big cities (these could, of course, be situated in one or more general hospitals) where severe burns can be dealt with promptly at any hour of the day or night by a trained staff, where special facilities are available for dressing them in a microbe-free atmosphere, and where there is also opportunity for continuous bacteriological guidance of treatment. There can be no doubt that if such provision were made many lives would be saved and the functional result obtained on recovery would be very much better than has been the case in the past.

* All that is necessary is to wrap such linen in strong paper, preferably white, put it in a hot oven till the paper just begins to char, then wrap the packet in another piece of paper and store away till required.

[1]L. Colebrook, "Burns and Scalds in the Home," *Monthly Bulletin of Health and the Emergency Public Health Laboratory Service*, October, 1946, page 214.

Hlth. Educ. J., 1947, 5, 69—70

SEX EDUCATION

By H. G. Tuchler, *Cottesmore Secondary School, Nottingham.*

Sex education is still a controversial subject, and any approach to it must be largely experimental. It may be of help to others to know something of the lines along which a Course on Reproduction and Sex Education was given at a Boys' Secondary School, of its results and of the conclusions reached.

The Course was held during the Summer Term, 1946, at the Cottesmore Secondary School (Boys' Department), Nottingham (Headmaster: C. W. Leaning, B.Sc.). It was included in the science syllabus and formed part of a wider scheme on the working of the animal and human body, for boys of 12+ in their second year at the school.

The Preparatory Work

The life cycle of the frog provided a convenient starting point for brief discussion of reproduction in the animal kingdom. The boys considered the development from asexual to sexual reproduction, based on practical work of observation of frog spawn, tadpole development, mature frog, dissection of one frog in every class by the master, demonstration of sections of cat's testis and rabbit ovary under the microscope. The ascent from external to internal fertilisation was considered, and from internal development of the egg to the first signs of parental care. One film, "Ways of Life," was shown. This brings out the tendency to increased safety for the offspring as evolution progresses.

After this preparatory work, discussion on reproduction in human beings began. Diagrams and sketches helped to explain the construction and function of the sex organs and scientific expressions were used throughout. The part played by the hormones in physical and mental development was stressed and explained. Cross reference to reproduction in animals was frequent and the film "Human Reproduction" was shown.

During the Course the boys had wide opportunity to ask questions and were encouraged to do so. In the later stages, the questions concentrated on the well-known problems of puberty with which boys of 12+ would be expected to be concerned. The last lessons of the Course were entirely devoted to a discussion of many written inquiries, duly signed and handed in; this provided a summary of the whole scheme, as it brought up once more almost every aspect discussed in it, mirrored this time, however, by the boys' own feelings, thoughts and experiences.

The Results

Reviewed in retrospect, several comments are worth recording. One important point is that this entirely biological approach allows reproduction and sex education to be fitted appropriately and without any sense of speciality into the framework of the science syllabus. Then it is advantageous to base such a course on the study of a particular animal, since this allows for practical observations and experiments, rather than theoretical abstractions.

By adhering to lesson routine of question and answer, practical activity, tests and so forth, excitement will be lessened. The strong emotional issues involved in the complex of sex which are for many surrounded with shyness and shame, can be countered by firstly dealing with the facts of reproduction in a straight manner and without hesitation. The further topics that naturally arise must be dealt with according to the intellectual maturity of the children. So one relies on their questions, after having established friendly and confident relations between teacher and class from the outset ; although there is the need to be on guard that no matters are discussed which might arouse artificial curiosity. There is a chance to use words unassociated with vulgarity, thus removing baseness from sex ; there is opportunity to deviate on occasion to matters of evolution and heredity ; and the need to keep discussion on the normal rather than the pathological aspects.

The use of the silent versions of the two films has obvious advantages in that the teacher can give his own commentary to different groups. It is important that the second film should only be shown at an advanced stage, after careful preparation.

The writer's opinion on the optimum age for the course described, for boys, is 12+ years. The youngsters have an initial familiarity with the problems of sex, and this is not a disadvantage. These boys were interested, attentive and well-behaved, and there was no silliness, giggling or blushing. Mothers did not complain of the Course. One believes it has saved some boys unnecessary worry, has helped them to gain a firmer grasp of the problems of life and has been a means of leading them to view as a natural and fine thing something previously looked upon as vulgar. Surely it has been worth while, and will always be worth while, to do this.

Hlth. Educ. J., 1947, 5, 71—75

INFERTILITY AND STERILITY

By Reynold H. Boyd, M.B., F.R.C.S.(Edin.),
Consultant Venereologist and Adviser on Sterility to the Essex County Council, etc.

From time immemorial till the day before yesterday the blame for a childless marriage was laid on the woman. Even the curse of barrenness was directed only at women. Physical causes being unsuspected in antiquity, relief and help were sought at the feet of the gods—at their vaunted shrines or in their sacred groves, to which long lines of unhappy pilgrims made their way. In mediaeval times the mineral baths at spas such as Baden-Baden became the popular ' cure.' Later in the mid-seventeen hundreds the Haymarket in London was the centre for treatment by one Abraham Johnson, in whose catoptrical box, conception, from exposure to the West Wind, was guaranteed. More recently, and until a very few years ago, the surgical treatment of dilating and curetting (scraping) the womb, alone or combined with crude glandular pills, became the still blind approach to the problem. Again and again was the operation performed to satisfy desperate and importunate yearnings. It is dreadful to think that most of these operations were unneeded and useless. Modern research on infertility was finally stimulated by an appreciation of this unsatisfactory and unfair treatment levelled almost without exception at the female partner, and by the poor results that followed. This research has fostered the belief that infertility is increasing in many European nations, but statistics are inconclusive and difficult to interpret among the many economic and other factors which cloud the issue. One tremendously important factor, however, did emerge, and it is that in almost 50 per cent of cases the fault lies with the male partner. It is now an axiom that the husband should be investigated first.

In marriage the average time for conception to occur is by the end of three months. This simple fact is little known, and valuable time is often lost by couples waiting several years before seeking advice. Where contraceptives are not used and the couples are not separated at intervals, which may well prove to be fertile days, any delay in conception beyond three months means some degree of infertility. If on investigation the cause is shown to be absolute and irreparable the case is labelled ' sterility.'

The causes of infertility and sterility are many ; some unknown or obscure but others clearly understood and, if brought within public knowledge, preventable.

The Economic Factor

It is a truism to state that no child ever arrives at a financially opportune moment until it is too late to have one. Rising costs of living, increasing taxation, housing shortage, high rents, delayed start in life due to years lost in war service, and difficulty of emergence from the lower wage-brackets have tended to raise the marriage age and increase the use of contraceptives. In far too many cases every attempt is made to avoid having a family till the woman has entered into the decade of declining fertility. It should be a golden rule in marriage to have the first child first of all and if necessary to space succeeding ones according to the wealth of the father and health of the mother. Contraceptives can be, therefore, an indirect cause of infertility by delaying attempts to have a family until a normal woman's fertility is waning or until the recognition of inherent infertility comes too late for correction and successful treatment. Inherent infertility must be recognised early to have a good chance of cure. Age is the enemy, and Time is not on the side of the delaying couple.

It is to be seen then that much of the increasing infertility of our era is due to the deliberate policy of young people and not to any physical degeneracy resultant upon the deficiencies or refinements of civilisation. But it must not be construed from this that contraceptives are in themselves harmful. It is to the abuse and not to the intelligent use of contraceptives that exception can be taken.

The Part Played by Disease

The venereal diseases are, as a result of the discovery of the sulfa drugs and of penicillin, both controllable and curable ; they are nevertheless extremely dangerous bed-fellows and are still the cause of much infertility and sterility. Diagnosis and treatment must be immediate if full advantage is to be taken of these wonderful drugs. Delay in treating gonorrhoea may lead to testicular inflammation in the male. If this occurs on both sides the result is sterility which can only be relieved by an operation that is by no means always successful.

In women the tubes may be sealed by the ascending infection, and the result here is an even more absolute sterility. Syphilis affects the fertility of women more than men ; its early stages are often unnoticed or disregarded and the disease becomes latent, its internal progress being hidden. Conception in such cases is frequently followed by abortion or miscarriage. The necessity for a blood test in cases of repeated abortion

or miscarriage becomes evident. The necessity of a blood test following any sexual risk is equally evident. By this simple and readily available test—available free to everyone—much infertility could be prevented.

Mumps is now known to be a serious cause of both infertility and sterility, usually in men, but occasionally in women who have been attacked at or after puberty. The virus of mumps may produce a sterilising or damaging inflammation of the testes or ovaries. Even if only one side is apparently attacked the other sex gland may be irreparably damaged. Where the damage has been less severe artificial insemination can be performed to overcome the infertility due to low numbers of spermatozoa in the semen. But more use should be made of immune serum as a prevention of sex gland inflammation in adolescents who have been exposed to or who have contracted mumps. The injection must be given before the complication arises as it is powerless to alleviate the effects of the inflammation once it has developed. Indeed few if any of the infectious diseases are the mild and harmless conditions they were once thought to be. Even German measles is now tainted with possible complications if contracted during pregnancy.

Rh Blood Incompatibility

This is a newly discovered cause of infertility. For a long time doctors have been puzzled by the fact that in a certain number of apparently healthy couples no successful pregnancy could be achieved. In these cases each pregnancy, except perhaps the first or second, ends disastrously in abortion, miscarriage, stillbirth or early death of the baby from jaundice. The cause of death is destruction of the baby's blood cells, and this occurs when there is a blood factor, known as Rh, present in the foetus and absent in the mother. In these cases, the foetus has inherited the Rh factor from the father ; but, as the mother's blood does not contain that factor, the mother's tissues re-act to it as to a foreign body : they produce anti-bodies to the Rh factor in the same way as they produce an anti-toxin to the toxin of diphtheria. This anti-body destroys the baby's ' foreign ' blood.

About 15 per cent of women are Rh − and, of these, it is estimated that 5 per cent will re-act, by producing an anti-body in this way in response to the stimulus of the presence of an Rh+ baby in their womb. But fortunately it usually takes one or two pregnancies for this sensitisation to take place. Sensitisation can also be brought about by blood transfusion with unsuitable Rh+ blood. There is a simple serum test for Rh incompatibility, but it is not practicable to apply it before all marriages. While, however, it may not be possible for Rh negative individuals to select Rh negative husbands they should at least have

Rh negative blood transfusions. Special care is now taken to ensure this during pregnancy where the risks of causing sensitisation are higher and the dangers great.

Underdevelopment

Undescended testicles are a very frequent cause of male infertility. The testes are formed in the abdomen and sink through the abdominal wall during the last month or so of pregnancy to take up their normal position in the scrotum. Sometimes their descent is checked by adhesions and sometimes by obscure hormone deficiency. The condition is easily recognised by the fact that the scrotum is absent or small and empty. Treatment is not always indicated, delayed descent occurring right up to the age of puberty. But skilled observation is always necessary as in many cases hormone injections or an operation will be required. An undescended testicle is not only useless but dangerously liable to cancer. Operation must be performed neither too early nor too late to be effective, and if left beyond puberty cannot undo the damage already done to the misplaced organ.

Time and time again discovery of this important developmental abnormality is left to the adolescent young man himself. The sins of parental omission are as serious as those of commission! Underdevelopment in the female is less easily recognised, the diagnosis being made by the gynaecologist when consulted as to the reason for no family at the end of months or years of trying. It is to avoid delay in recognition and to speed treatment of this cause of infertility that the use of contraceptives should be postponed till after the first child, when they can be properly employed to space subsequent arrivals. Underdevelopment in the female is not an absolute bar to conception, but it does make it more difficult. If the age factor is added the infertility all too often becomes sterility.

There are, of course, many more recognised factors in infertility than those outlined above ; glandular deficiencies ; tuberculosis affecting tubes or testes ; chronic infection of the cervix or prostate, arising often from incompletely cured venereal disease ; and, not least, the effects of induced abortion. In addition there must be many unknown primary or contributory factors—the goal of present research. The glandular deficiencies, too, though recognised, are little understood, and treatment in this field is still unsatisfactory. That diet has any effect seems more than doubtful when one considers the pre-war fecundity of semi-starved Italians (unless garlic be the antidote) ; and even in the Nazi concentration camps such as Dachau, pregnancies occurred. The speed and chemical impurities of modern civilisation are also suspect ; but again it is by no means certain that true infertility is increasing.

Diagnosis and Treatment

Treatment has advanced greatly in recent years and many hospitals in this country now have special departments for the diagnosis and treatment of infertility. The husband is always examined first. The semen analysis may disclose the cause in a few minutes where investigation of the female partner entails not only examination but also testing the tubes for patency with a short stay in hospital. In many women this simple diagnostic procedure is followed next month by a pregnancy ; in others further operative procedures may be indicated, or artificial insemination may be needed to bypass cervical infection in some or to counteract the feeble possibilities of deficient numbers of spermatozoa. So far these active surgical procedures have given much better results than attempted stimulation by hormone injections, but there is much to learn in this youthful branch of medicine, and it is a branch that has great expectations.

THE SANITARY INSPECTOR AND HEALTH EDUCATION

In the course of his day-to-day duties the Sanitary Inspector is an important health educator.

The Central Council for Health Education recognises this, and has prepared a syllabus of lectures which it is hoped will prove interesting and attractive to Sanitary Inspectors. It will, in a sense, serve as revision of the most up-to-date knowledge as it affects their work ; and it will examine the opportunities which arise for health education, and the methods by which it can be carried out as an integral part of the duties of a Sanitary Inspector.

The Course consists of four lectures, which have the following titles—" Individual and Community Health," " Environment and the Sanitary Inspector," " Nutrition and the Sanitary Inspector," " Infection and the Sanitary Inspector." The first series of lectures is to be given at Manchester on April 29 and 30, and Medical Officers of Health who are interested in such a Course are invited to communicate with the Medical Adviser and Secretary, The Central Council for Health Education, Tavistock House, Tavistock Square, London, W.C.1.

Hlth. Educ. J., 1947, 5, 76—78

VARICOSE VEINS

By R. Rowden Foote, M.R.C.S., L.R.C.P., D.R.C.O.G., *Surgeon-in-Charge, Varicose Vein Department, Harrow Hospital.*

One out of ten of the entire population of Great Britain has varicose veins ;* and in the case of women over forty-five, as many as one out of every four is affected.† Translated into terms of human suffering, these cold statistics mean much physical and mental distress. The fact that candidates for the Armed Forces are refused admission if found to be suffering from varicose veins is sufficient proof that sufferers cannot stand up to non-sedentary occupation. And many patients, especially women, are affected from the mental angle owing to the ugly disfiguration of their legs. Moreover, such complications of varicose veins as ulceration, eczema, phlebitis, and œdema have a big effect on absenteeism in industry. But the incapacitating effect of this disability is perhaps best shown by the fact that one in ten of the patients admitted to Emergency Medical Service Hospitals during the war were suffering from varicose veins.

Not all enlarged veins are varicose, of course, but all varicose veins present certain distinguishable features. The wall of the vein loses some of its elasticity and becomes thinner in parts. As a result it dilates and lengthens and thus becomes tortuous. In the latter stages, the changes affect the valves which are normally present throughout the length of the main veins and which ensure that the venous blood travels from the extremities to the heart. As a result of these changes the valves cease to function properly and the flow of blood in the veins is reversed. This reversal of circulation causes stagnation of blood in the most dependent part of the limb, and dropsical fluid passes into the tissues. A portion of the overlying skin may then become eczematous, and finally the incapacitating state of varicose ulceration may develop.

The Cause

The cause of varicose veins is a much more involved matter than is usually understood by the public. Most people imagine that varicosities are produced by prolonged standing. This is not so, although a natural tendency towards varices may be rendered worse by an occupation which necessitates standing for unnaturally long periods, as in the case of nurses, waiters and police. There are many reasons why a normal vein adopts its wayward and tortuous course as a result of varicose disease. I have

* *On the State of the Public Health during Six Years of War* (1946). Min. of Health.
† A survey of 10,000 candidates for the Post Office Service (prepared by Dr. Cecil Roberts).

referred to these causes in previous writings as *varicosity factors*. A few of them may be given here, for they have a bearing on the production of varicosity and show how much interest there remains for research workers in this subject alone.

The erect posture adopted by the human being is a factor of great importance. You will never come across a case of varicose veins in a dog! Then, heredity has much bearing on their production. The successful treatment of a case will nearly always result in a further appointment for a mother, uncle or near relative. We have evidence, too, that the ductless glands play a part in the production of the varices that become more evident at the time of puberty, the menopause and during pregnancy. Past illnesses, such as the acute specific fevers, may give rise to inflammation of the veins, causing valvular damage and progressive varicose disease. Vitamin deficiency is said by many to be another contributory factor.

The Treatment

Although varicose veins in themselves can cause many physical symptoms, such as heavy, aching limbs which easily tire, it is not until the dreaded complications arrive that incapacity is produced. The main complications of varicose veins are inflammation (phlebitis), eczema, and ulceration. Phlebitis in a superficial varicose vein may be a serious complication unless it is properly treated, but operative or ambulatory treatment by means of supportive bandages correctly applied has made this condition much less dangerous and has reduced absence from work. In these days no patient should be allowed to develop a varicose ulcer as a result of simple varicose veins, and I will go so far as to say that the presence of such an ulcer is a criticism of the patient's laziness or of the doctor's failure in deciding the correct treatment before this condition has occurred.

Ochsner, in America, considered that " The overwhelming majority of patients who have varicose ulcers are indifferent, careless, dirty, indolent individuals who have neglected their varicose veins and have been too tolerant of the ulcers." This statement is unfortunately partly true, but I am afraid that I see many patients who have developed ulceration from lack of suitable treatment, due to no fault of their own.

All cases of varicose veins can be benefited by treatment. First, there is the type of case which needs conservative measures only ; in other words, the correct form of supportive bandage, stocking or dressing. Then all those cases which have not progressed too far and in which the venous valves still function can derive considerable help from careful injection treatment. Recurrences after this form of therapy are high, however, and benefit from injections may only last for a comparatively

short period. The third method is by surgery, often in conjunction with injection treatment. The old mutilating operations have been abandoned and in the majority of cases the operation may be performed without losing more than a few days' work. Unfortunately, surgery too is not infallible as far as recurrence is concerned, and even the most skilful operation may not give the sufferer a permanently good result. However, if he is prepared to pay an annual visit to the varicose specialist, his legs can be kept in almost perfect order.

A New Attitude

I feel sure that, in time, there will be a more enlightened attitude towards the treatment of varicose veins. Progress is slow, however, as proved by the remarks made by the bedside of a patient suffering from varicose veins just one hundred years ago, by the great Sir Benjamin Brodie, Surgeon to the Queen.

"This is a case in which there is no question about the patient's life or death, and I think it very probable that many among you may pass by the bedside of such a patient without thinking it worthy of attention. But I am not disposed to regard it in this manner. Although the patient will not probably die of this disease yet, without great care, it may render her miserable. The disease may be very much relieved by art, and it is one of very common occurrence. . . . Such a case is one as may meet you at every turn of your practice ; and your reputation in early life will depend more upon understanding a case of this kind, than upon your knowledge of one of more rare occurrence."

Although this statement was made as long ago as 1846, clinics specially devoted to the treatment of varicose veins are still few and far between in this country. And in the majority of our hospitals varicose vein patients are not catered for in special departments, although eye, dental, orthopaedic and throat conditions are all segregated and seen by specialists who have devoted their lives to these particular divisions of the human body. But most varicose sufferers are seen by the more junior members of the general surgical staff. In fact, varicose surgery is very much the Cinderella of the general surgical department.

A condition that affects five million British people and causes so much discomfort and disability deserves more attention and a higher standing in the hospital hierarchy.

SUMMER SCHOOLS IN HEALTH EDUCATION

All places in the Summer School in Health Education to be held at Keble College, Oxford, are now filled, but there are still a few vacancies at Bede College, Durham, where the Central Council for Health Education is holding its second school from August 20 to September 3 inclusive. The inclusive fee is 14 guineas per student. Those wishing to book accommodation at this school or to have further details should apply without delay to the Medical Adviser and Secretary, the Central Council for Health Education, Tavistock House, Tavistock Square, London, W.C.1.

Hlth. Educ. J., 1947, 5, 79—88

PSYCHOSOMATICS

By Emanuel Miller, M.A.(Cantab.), F.R.C.P., D.P.M., *Physician in Child Psychiatry, St. George's Hospital, London.*

Psychosomatics as a word or subject does not appear in dictionaries or in medical treatises prior to 1935. But psychosomatics is not a new branch of medicine ; it is an attempt to encourage and to bring together studies which make a contribution to the understanding of the organism as a whole in its physical and psychological aspects. In other words it is a new attitude in medicine springing not from any philosophical speculations as to the ultimate nature of mind and body, but an approach forced upon us by the pressure of events in the development of medicine.

Emotion and Health

Medicine has made advances on a very wide front and in the process has invoked many alliances. To the naturalistic or physiologically minded physician, alliance with biochemistry and biology seems natural ; in the field of mass medical observation, as in public health and epidemiology, medicine needs and makes increasing use of the statistician ; when medicine began to concern itself with the working and living conditions of the sick worker the economist and the sociologist were brought into the grand alliance ; and, welcome or not, the psychiatrist has for long been knocking at the door of medical orthodoxy with discoveries which have in his estimation an unexpected bearing on the problems of physical health.

Folk-lore, literature and the somewhat unorthodox excursions of religions old and new, have given repeated intimations that health and happiness—which seems to foster health and total serenity—are bound up with our emotional lives. Societies as well as individuals sicken and decay as the result of psychic events. Amongst simpler peoples and in the so-called irrational superstitions in ourselves, mental attitude is felt to influence profoundly bodily well-being. The person who transgresses a tribal usage goes out and dies or sickens of disease. The child who in his conduct seems to offend ancestral ghosts is smitten by them. Infidelity and promiscuity were thought to produce venereal disease. The sinful community suffered the wrath of heaven by epidemics as well as by famine and flood. Devils and possessions can alone explain to the primitive mind in all of us the encroachment of illness for which patho-

logy can find an explanation only when organic damage has been done. The novelist tells the tale of pining damsels who go down with megrims and wasting disease.

Relationship of the Mental and the Physical

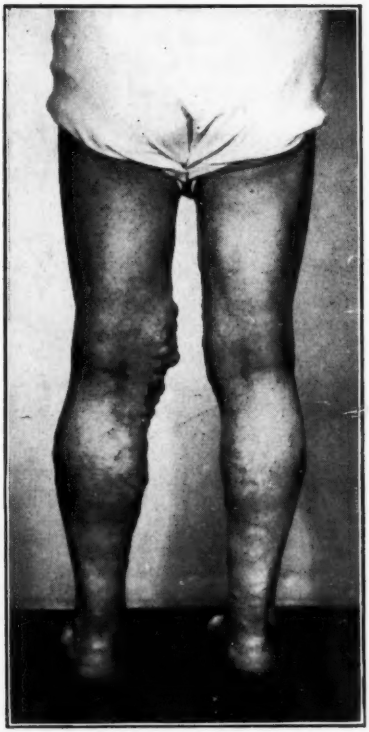
Of course, the brilliant victories and glittering prizes which chemistry and physics have awarded the advance of medicine are undeniable ; and these sciences give ample explanation of many disease processes. But simultaneously with this spectacular advance in physiological medicine has gone on the advance and expansion of psychiatry. This advance has been due to the knocking down of the walls of the mental hospital and a regrading of the degrees of mental disorder. Simpler mental breakdowns came to be viewed as disturbances in the emotional life not far removed at times from the hypothetically normal. It soon became obvious to pioneers such as Freud, Jung and Adler that we must look beyond the patient's conscious explanation of the reasons for breakdown. Hypnosis at first revealed to Charcot, Janet and Freud that the mind was somehow operative below the threshold of conscious awareness ; that it was painfully and indeed perversely active. So it soon became more and more clear that the manifest qualities of a disorder—a terror, an aberration and disturbances of sense and of movement—were strangely related to urges and attitudes which were not recognisable in consciousness but which hypnosis, for example, revealed as definitely connected with them. With the passage of time and the perfection of techniques for exploring these undertones, psycho-analysis developed as an instrument of dissection and disclosure and cure.

With the mechanisms of the mind which this new technique disclosed we cannot deal here. We can only say at this point that it was largely under the impulsion of psychopathology that psychiatrists, in the process of discovering the underlying or unconscious causes of nervous illness, found not only that a personality consists of interacting mental trends and conflicting interests, but also that bodily processes and mental processes are closely interdependent and that disturbances of the emotional life are the links between the two.

Discovery of the First Link

Present-day thinking in both pure psychology and clinical medicine lends support to a two-aspect theory of body and mind ; namely, that the life of the organism consists in events which are causally related because they can be subsumed under physical laws ; and of other events which hang together because they are subjective—related to the organism's awareness of feelings, thoughts and the will to act. Furthermore, it

D.P., aged 9. Clothes ignited by electric fire two years ago. 30% of body surface badly burned. Although the burns were healed within two months, a troublesome contracture developed under the chin. This has since been dealt with by plastic surgery.



A case of varicose veins in which the worst leg (right) has been treated by surgical means.

Varicose veins over 2,000 years ago. Relief ca. 400 B.C. from Temple near Athens.

(See article on page 76)

follows that many of the physical events such as objective signs of emotional change and actions are correlative with the events of awareness.

Freud's hypothesis that there are dynamic substrata of instinctual drives which the organism meets and satisfies through perception of the possibilities in the external world, gives us a first link in building up psychosomatic relations. First, the instincts are part and parcel of the organic needs of the organism and intimately associated with metabolism and growth ; secondly, organic satisfactions are achieved by the adjustment to external environment. The organism lives by maintaining equilibrium which is perpetually being disturbed by the internal needs of growth and expansion and by the external disturbing or satisfying stimuli. Thirdly, the organism by the power of retention and the technique of rearing from birth onwards becomes conditioned to certain situations which yield either satisfaction or frustration.

Personality grows or becomes cramped in the process of the building up of patterns of behaviour which help development or raise convenient barriers to ward off dangers. Thus not only are patterns of emotion laid down which produce our sentiments and our complexes, but they produce metabolic patterns which either encourage normal growth or inhibit growth. Inhibition of growth affects bodily structures, obstructs functions and opens the organism to all sorts of assaults and insults, for example, microbic infections and such distortions of the functions of organs as will produce debilities at which points invasions take place.

Thus at this deep level the mental and physical events are not only interdependent but can aid or hinder one another. Thus we have the first link establishing a hypothesis on which psychosomatic unity and disunity can be studied and on which therapy can be established. The hypothesis gives us a spring-board for reaching out to further understanding, and newer and more adequate hypotheses and confirmatory facts regarding causes of behaviour.

Correlation of Character and Physique

A further confirmation of psychosomatic unity comes from another source—the extensive anthropometric studies of the relationship of physique to character.

These studies, made prominent by the work of Kretschmer, but confirmed by other observers in America, England, France and Italy, affirm that differences of character are correlated with differences in physique. The thin, tall and slender tend to be introverted, imaginative, sensitive and very limited in their sociability. The rotund, compact and square-jawed are extroverted, matter of fact and easy in their sociability. The distribution of these extreme types in the ordinary population is too

diffused to allow of a bipolar distribution, but in the mental hospitals there is a generally accepted evidence of the distribution of the physical types between the schizophrenias on the one hand and the manic depressives on the other. It is too early in these researches to make dogmatic assertions about the part played by endocrine make-up in shaping these polar opposites of physique, but the more we know eventually of these biological divergencies in terms of biochemistry, the more will the bonds between the physical and the mental components of life be forged. Tying up these discoveries with the work of Draper we see how closely allied are mental pattern and proneness to disease. The work of Dunlop, Wilson and Wittkower and others on the mental attitude of sufferers from various diseases, has thrown a still more intimate and penetrating light on the emotional attitudes and complexes which make people candidates for such disorders as peptic ulcer, rheumatism and dermatological diseases. Critically handled, these studies do not allow us to conclude that such diseases are *caused* by the emotional vicissitudes, but that emotional stresses open the door to those infective or allergic agents which affect specific tissues. Perhaps we may state, however, that specific tissues in so far as they serve special biological functions must somehow link up with those psychological needs which those tissues serve. My own observations go to show, for example, that persons with joint or muscular affections are those who would, but cannot, express themselves adequately in action and that with the emergence of emotional complications their muscular-skeletal system is the one which carries the greatest stresses and is therefore laid bare to any physical assaults.

The Application of our Discoveries

It will become increasingly clear as further researches are carried out that different moods express themselves in different visceral patterns, and consequently that different psychological types and characters will have differing physical destinies. The more we know of such relationships the more we will be able to advise as to vocation. We shall be able to make such job analyses as will enable us to state with a reasonable degree of accuracy that certain mental types have such and such a measure of success in a given vocation, or that certain physical strains inherent in or accompanying such vocations are inevitable because of the proneness of some to fall victims to an industrial disease which would leave others invulnerable. Nevertheless, it will take some time before we can direct persons into industry or professions on psychosomatic grounds. We can but advise with our present unsharpened instruments, but not direct. The plea that obsessional types of mind are particularly prone to gastric diseases would be stretching the net very wide ; we will for a long time yet be well advised to examine the meshes

of a net which will catch the wrong fish and let the little but potent offenders escape. Our statistical studies in psychosomatic relations will give us indications as to where to look for causes, but in the end we must look to the diary of an individual life for clues as to peculiarities in disease. Each individual will betray in and through his life story the relation between his happiness, his hazards and his disease. Statistics will help us only to group and classify, and then establish firmly the relationships between different mental patterns and their correlative physical disorders.

TALKS TO SCHOOL LEAVERS

The Central Council for Health Education normally receives many requests for talks on the social and moral aspects of sex education to be given at the end of July to the leavers in Secondary Grammar Schools. As these requests, coming from a large number of schools, all tend to be for dates in the last fortnight of July, it is not always possible to send the lecturer whom the school would like, and it is sometimes very difficult to send anyone at all.

It would therefore greatly assist our work if bookings for such talks could be made early, and if as wide a range of dates as possible could be offered.

BIOGRAPHICAL NOTES

REYNOLD H. BOYD, M.B., Ch.B.(N.Z.), F.R.C.S.(Edin.). — Consultant Venereologist to the Essex County Council and its hospitals and Adviser on Sterility. Author of many articles on sex problems and diseases and of scientific and popular books, including *Controlled Parenthood, Diet and Care of the Surgical Case,* and *V.D. Lectures for Nurses.*

LEONARD COLEBROOK, M.B., F.R.C.O.G., F.R.S.—Became interested in the septic infections of wounds during World War I when working with Sir Almroth Wright in France. Following that war his work was centred upon the rather similar problems of child-bed fever at Queen Charlotte's Hospital, and in the course of this work he carried out the first trials to be done in this country of the 'sulpha' drugs. During World War II and up to the present time he has been concerned with the treatment of burns and scalds, first at the Glasgow Royal Infirmary and more recently in the Burns Unit of the Birmingham Accident Hospital.

Hlth. Educ. J., 1947, 5, 84—86

PUBLIC ENTERTAINMENT AND IMMORALITY

By P. J. Haward, *Assistant Master at a private school.*

People are quick to condemn public places of amusement—dance halls, public houses and pin-table halls—and we are treated to lurid descriptions of the immoral sex behaviour of those who frequent them. The authors of these outbursts condemn the public establishments as the cause of the immorality and prescribe a remedy for the problem. By means of controls they hope to save souls.

Dancing and drinking could certainly be made illegal and checked. It would be possible to restrict almost any organised activity by law; but it would be impossible to prevent sexual immorality in the same way because sex is not an organised pastime: it is the concern of the individual. You can tell a person it is wrong to do something and, by explaining the harm of his action, you can point out why it is wrong, but if you start ordering him about he will laugh at you and make quite certain that he does as he pleases. How emotion can cloud the understanding is shown by the outburst of an indignant soldier, an ardent Party man, who said: "It revolts me the way these war-time wives go around with other men the minute their husbands go overseas. When the —— Party gets in all that will be stopped."

The Public House

It is the public house that provides the Grundy Family with their strongest argument. Here are the indisputable facts with which they attack. Alcohol affects the brain so that convention is easily forgotten and our fundamental sex instinct, normally controlled by a mind trained to accommodate the needs of civilised communal life, is given more freedom, allowing us to do things from which we would otherwise refrain. Many men cold-bloodedly use this fact: premeditated seduction is no uncommon thing.

Drink has certainly helped to cause the downfall of many young girls but, had they realised the risks they were running, it would have been a different story. Instead of being ordered not to drink—useless negative advice—they should have had the dangers explained. They should have been told how easy it is for a man to dissociate the mental side of love from the physical and how well he can employ alcohol as an ally

to seduction. They should be instilled with the ideal of married love and should understand how pre-marital intercourse may destroy their chances of experiencing this happiness. Control of public houses will never help youth as much as a little sympathetic explanation, but it will give fresh scope to the racketeers. A study of prohibition in America will show how.

The Dance Hall

Public dances are much more popular with girls than with men. Most girls will tell you they go to them because they like dancing. Most men say they never go unless they have had a few drinks first. From a girl's point of view a dance is one of the easiest ways of finding a new boy friend. Far from wanting to turn into a woman of easy virtue she wants to meet a man with honourable intentions. She will seldom confess this: she will cling to the " I came-here-to-dance " plea as long as possible, but then few girls will ever admit that they want to marry. They think husband-hunting a low sport: such things should be laid on by an act of God: an opinion with which I hesitate to agree.

At a public dance, though perhaps less so than in a public house, you will find a good cross-section of the community. There will be the virgins and the less respectable; the considerate and the 'wolves.' In the high street the following day you can easily see a similar selection. The person who talks of the atmosphere of a public dance influencing a young girl and simplifying the work of the seducer, is out of touch with reality and has obviously never been to a town hall 'hop.' If a girl is carried away by an evening in a hot, smoky hall, full of noise and lemonade, any other place would have ensured her downfall sooner.

Considering these facts it is difficult to see why public dancing is so strongly condemned. To say dancing creates friendships and that some friendships are immoral, is to enunciate two separate facts, both perfectly true; but to argue that because of this dancing is a cause of immorality is weak reasoning in the extreme. Study any large town on a Sunday, when there are no public houses or dance halls open, and see how the people pass the evening. There are only a few cinemas and cafés to go to and these are quickly filled. You need only walk down the principal streets to form an opinion of the service rendered by public entertainment of any sort. A city of loiterers is no inspiring sight.

Those illogical minds that condemn dancing often follow up their plea with a word of excuse for the morals of the troops. They paint a pathetic picture of innocent soldiery being lured to its doom by abandoned womanhood. If there is a man who has been seduced against his will he deserves little sympathy, but personally I doubt his existence. The picture will only be clear when we acknowledge what we know to be

an obvious truth. Every immoral woman was originally seduced by a man and, whatever happens, her side of the deal is bound to be the most tragic.

The Solution

Several factors can cause the initial seduction of a girl. She may give in to a man on the understanding that he intends to marry her. By deceitfully making a girl believe this it is easy for a man to achieve his aim. She may give in because she thinks it is her last chance of keeping her boy friend. Here she ought to realise that she is simply presenting him with a parting gift. I have already mentioned the place of drink in seduction: to my mind it constitutes a form of rape. Finally a girl may give in to a man because of her own physical desire. In such a case the ideal of marriage and mental love in its relation to the physical is probably insufficiently appreciated. The way to prevent all such tragedies is to explain these facts to youth. If a girl understands why she should stay chaste—quite apart from learning about venereal diseases and pregnancy—and also knows the ways by which a man can lead her astray, she should not be lacking in negative advice.

There is only one answer to the problem: education. Let everyone understand the effect of his actions. Tear away the mask of Victorian "don'ts" and let the people know why not. Until we have ideals we cannot be expected to live up to them. Explanation of life and appreciation of cause and effect will create ideals. Negative advice by itself deadens the mind: freedom and understanding will invigorate, stimulate and make it healthy. Health goes hand in glove with happiness, and happiness begins and ends in the mind.

"REBUILDING FAMILY LIFE IN IN THE POST-WAR WORLD"

This "Inquiry with Recommendations," edited by Sir James Marchant, was published in 1946. It contains an introduction by Lord Horder, and contributions by Mr. R. M. Titmuss, Sir John Boyd Orr, Prof. F. A. E. Crew, Sir Arthur S. MacNalty, Dr. Eliot Slater, and others. We have available for distribution, free of charge, a number of paper-bound copies of this interesting symposium. Please send 3d. in stamps to cover postage, etc.

Hlth. Educ. J., 1947, 5, 87—93

TOWN PLANNING AND HEALTH—PART II

By Arthur Ling, B.A., A.R.I.B.A., A.M.T.P.I., *Senior Planning Officer, London County Council.*

One of the consequences of urban overgrowth is the terrific increase in travel. A patient would probably be surprised if his doctor told him that he was suffering from an overworked transport system, but he would often be justified, for there are millions of city dwellers who are subjected every day to more than an hour's travel under the most trying conditions, and the cumulative strain on the nervous system must inevitably have its effect, even on the most robust.

In London the L.P.T.B. has estimated that two-thirds of its pre-war traffic was due to the daily journey to work ; there are a quarter of a million transport workers engaged in carrying the others about at a cost of £40,000,000 annually. The average expenditure of a London family on transport was £15 in 1938 ; on the L.C.C. estates 60 per cent of the families spent over £7 10s. and 21 per cent over £15 annually in getting to and from their work. Londoners are weary with travelling backwards and forwards from their dormitory suburbs in trains so crowded that they hardly have room to strap-hang properly, and when they get home they have very little time left to do more than prepare for the return journey in the morning.

The fundamental cause of all this excessive travel in London is its excessive size and its over-concentration of commerce and industry at the centre. The only effective cure is a planned decentralisation of industry and population to new towns. Coupled with this there should be a more local decentralisation of industry and business to the suburbs, so that people have work near at hand. At the moment the trains going into the centre are over-full, while those going out are practically empty, and new suburban work centres will ease the congestion by giving a balanced use of the in-going and out-going transport services.

How Road Accidents Could be Reduced

A more obvious effect of a faulty transport system on the nation's health is the high accident and death rate on the roads. In 1936-7 there were 236,000 accidents, of which 6,000 were fatal. Seventy-four per cent of all accidents and 62 per cent of the road deaths occurred in urban areas. Proper road planning could avoid the majority of these, but it is unreasonable to plan new arterial roads and then allow houses and shops to be

built alongside, so attracting pedestrian and vehicular traffic to the same spot, and then expect a propaganda campaign to prevent them colliding.

There must be a physical segregation of pedestrians from fast traffic ; villages and towns must be by-passed so that through-traffic is not directed into their busy centres, and in the large towns and cities we need a system of fast traffic roads to free the local roads, where the people congregate, of everything except essential service traffic. These fast traffic roads should be as inaccessible as the railways—they are just as dangerous, if not more so.

As things are at the moment, our main roads, designed for horse traffic, are attempting to cope with a completely new form of transport and a vastly increased number of vehicles ; and they have become so choked that motorists are forced to seek alternative routes through residential areas. By providing new main roads of adequate width we shall be able to apply the principle of planning in precincts and neighbourhoods, which would be free of noisy and dangerous traffic. The Temple in London is a very good example of a precinct in which the lawyers work and live quite peacefully without the disturbance of passing vehicles, in spite of the fact that it is situated in the most central Fleet Street area. The University Colleges in Oxford and Cambridge also illustrate the principle.

We must break away from the old by-law conception of street planning with direct road access provided to every building, even though the only callers are the milk cart and the removals van. There are too many people living, working and playing on the streets under this system of street dictatorship. Its overthrow is not easy, for people like living on the street ; seeing traffic and people passing by gives them a sense of movement and activity. But our civilisation is in a sorry plight indeed if people have to live alongside traffic roads in order to feel that they are alive. Mental activity is as important to health as physical activity, but we must look elsewhere than the road for its stimulation. The neighbourhood unit with its community buildings should provide the focal points of local life.

Noise — A Subtle Enemy

Noise is another product of urban life which is having a serious effect on health. It has become such an integral part of town life that we have become almost indifferent to it ; we express surprise at the quiet of the country rather than the noise of the city. We work in offices to a continuous background of telephone bells, screeching brakes and rattling tramcars, augmented by the clatter of pneumatic drills and the roar of passing trains. Travelling home at night in the underground is a concen-

trated nightmare of noise. A similar background distracts the teacher and her pupils in school. In our homes proper sleep and rest are prevented by a different assortment of noises—the loudspeaker, the gramophone, or the noise of our neighbours—either because we are crowded too close together, or our dwellings, particularly flats, are not properly designed to absorb noise. Often the source of noise is the nearby factory. Even in hospitals it's often impossible to escape from the din of city life.

People may easily become accustomed to this background of noise, even miss its absence and rush to turn the wireless on when a quiet moment dares to intervene, but subconsciously it seriously effects health, and is the more dangerous on account of its subtle effect.

There is some legislation which controls this nuisance, but by no means adequately. Lord Horder, as chairman of the Anti-Noise League (and the fact that he was chairman is significant), did much useful work in reducing the blare of motor-car horns and other street noises. If, however, this contributory cause of ill-health is to be dealt with effectively it is foolish to wait until the nuisance is committed before control is attempted. Regulations are required which will ensure that every machine, means of transport, or other source of noise emission is subjected to a rigorous noise test before it is allowed to operate. There is room for considerable research into the question of reducing the noises from buses, cars and lorries.

Where it is impossible to eliminate the noise, then segregation is the most effective solution. Noisy traffic, roads and railways should have a buffer of open space between them and the residential or business areas in the form of a parkway. Factories with noisy machinery should be in special industrial zones. Hospitals should be in the middle of open spaces. On the domestic level there should be greater insulation of dwelling from dwelling. Children's playgrounds should not be immediately underneath the windows of flats. But we do not want to take suppression of noise so far that the children only dare whisper ; if we eliminate the din of mechanical devices and means of transport we should appreciate more the sound of human voices.

Atmospheric Pollution

Even more harmful than noise is the pollution of the air by smoke and fumes. In the central area of London, as compared with Kew, there is a 50 per cent loss of sunshine—and sunshine is not provided so generously that we can afford to waste half of it, for apart from the pleasure it brings, fresh air and sunlight are essential to good health. Respiratory diseases such as tuberculosis, pneumonia and bronchitis account for more deaths than any other group of infectious diseases, and they are seriously

aggravated by atmospheric pollution. The death rates from these diseases are much higher in districts which are collecting-grounds for fogs, and where the air is smoke-laden. These areas, unfortunately, are usually the most densely developed and overcrowded as well as the most deficient in parks and playgrounds.

The smoking factory chimney is not the only culprit ; the domestic fireplace is responsible for almost two-thirds of the smoke in towns. The damage and waste has been estimated at some £80,000,000 annually, but the effect on health can be measured only in human lives and ill-health.

John Evelyn, as long ago as 1661, petitioned the King for legislation to combat the smoke menace. He described the City of London as resembling

> " the face rather of Mount Etna . . . or the Suburbs of Hell than an Assembly of Rational Creatures. . . . For when in all other places the air is most serene and pure, it is here eclipsed with such a cloud of sulphur, as the sun itself, which gives day to all the world beside, is hardly able to penetrate and impart it here ; and the weary traveller, at many miles distance sooner smells than sees the City to which he repairs. This is that pernicious smoke which sullies all her glory, super-inducing a sooty crust or furr upon all that it lights, spoiling the moveables, tarnishing the plate, gildings and furniture and corroding the very iron bars and hardest stones with those piercing and acrimonious spirits which accompany its sulphur ; and executing more in one year, than, exposed to the pure air of the country it could effect in some hundreds. It is this horrid smoke which obscures our churches and makes our palaces look old, which fouls our clothes and corrupts the waters."

Evelyn's petition, however, in spite of its eloquence, had no effect, and it was not until 200 years later that the Government were persuaded to introduce legislation to control the smoke nuisance. The Public Health Act of 1875 gave powers to local authorities to enforce fireplaces, furnaces in factories and chimneys (but not domestic ones) to consume their own smoke, but only as far as practicable, which gave a sufficiently large loop-hole to make the powers ineffective. The 1926 and '36 Public Health Acts strengthened these powers, but the domestic fireplace was still out-side the scope of control. During the war there has been a general relaxation of smoke nuisance regulations, but now, in conjunction with the reconstruction schemes for war damaged areas, steps are being taken to tighten up control. Manchester and the City of London, for instance, are promoting private Bills to enable them to declare certain areas as smokeless zones in which all heating plants installed have to pass a rigorous smoke test.

Over the last fifty years there has been some improvement. In 1890 the loss of sunshine in central London as compared with Kew was 80 per cent as against the pre-war figure of 50 per cent previously mentioned—due mainly to the increased use of gas, electricity and smokeless fuel. We need now to make comprehensive use of these new fuels and methods of heating and lighting. We have, of course, to contend with the British

love of an open coal fire, but perhaps we shall have the housewives' support if thereby she gains some freedom from the tyranny of the coal-scuttle and the wash-tub. If this prejudice can be overcome there are several revolutionary possibilities, the most important being district heating. At the moment, our electricity stations generate an enormous quantity of heat which is completely wasted. At the Fulham power station it is discharged into the Thames, where is raises the temperature of the water by several degrees. If this valuable by-product could be harnessed, whole districts could enjoy central heating on tap, and they would be free of thousands of smoking chimneys. It would also save vast quantities of fuel, and the expense of depositing it in small quantities to every house and factory. The building of new towns and the reconstruction of war-damaged areas gives the opportunity of carrying out such schemes on a large scale.

Other means of preventing the pollution of the atmosphere are by electrification of the railways, by segregating the large industries, especially the noxious ones, on the windward side of the town, and by treatment of smoke before it is emitted.

Light and Air

Having cleared the air we must allow more of it to penetrate the streets and offices. There must be a more generous spacing of buildings, particularly of flats ; a more open type of commercial development is needed, designed according to human rather than land values. Electric light must not be allowed as a substitute for sunlight in offices. We have a Factories Act to regulate the working conditions in factories and workshops, but the office worker is in need of protection too.

More open space in the form of public parks and playing fields is needed in the working-class districts of our towns, as well as in the central business areas for lunch-hour use where people can take the air. Recreational facilities are essential for healthy living. The death and infant mortality rates are higher where the standard of open space is lower.

During the last thirty years we have taken the town to the country in the form of sprawling suburbs ; we need now to bring the country to the town. If in our cities we were not able to lose sight of grass and trees, town life might be a real attraction. There should be more squares and parks with green walks linking them into a co-ordinated park system and leading out to a green belt encircling the built-up area.

In planning the residential areas we must make more extensive use of the high ground where the air is good, and less use of the low-lying land where the fogs collect. If one were building a new town on a clear site without the encumbrance of land values, the most logical and healthy

arrangement would be to locate the higher-density housing on the higher ground or near open spaces where the maximum of air, sunlight and amenity was obtainable, reserving the lower-lying ground for lower densities. In the past the opposite process has taken place in our towns and cities. The best land for housing has been bought and developed for large houses with extensive grounds, while the greatest overcrowding has taken place in the geographically depressed areas. This situation has been made worse by reconstruction of working-class areas at even higher densities, and because of the high cost of land local authorities have often been forced to buy up the worst sites near railways or industries.

We Must Plan for Health

There are many other health requirements of town life which can only be met by proper planning. In the past we have left our towns to grow in disorder and have planned to remedy the ill-health they produced. It is our duty now to plan for health and make our towns fit for people to live in. Town planning, by eradicating the environmental causes of sickness, provides the essential basis for a healthy urban population.

BIOGRAPHICAL NOTES

R. ROWDEN FOOTE, M.R.C.S.(Eng.), L.R.C.P.(Lond. 1923), D.R.C.O.G. (St. Bart.).—Surgeon-in-charge of the Varicose Vein Department, Harrow Hospital; late Physician-in-charge, Varicose Vein Clinic, Royal Waterloo Hospital for Women and Children; late Squadron-Leader, R.A.F.V.R. Author of *Varicose Veins, Haemorrhoids, etc., Sclerotic Therapy in Practice, Some Everyday Problems in the Treatment of Varicose Veins,* etc., etc.

EMANUEL MILLER, M.A.(Cantab.), F.R.C.P., D.P.M.—Established the first Child Guidance Clinic in England. Hon. Consulting Physician, Tavistock Clinic; Psychiatrist to the West End Hospital for Nervous Diseases; Senior Physician and Lecturer, Maudesley Hospital; Physician in Child Psychiatry, St. George's Hospital; Co-director, Institute of Scientific Treatment of Delinquency. Author of books and papers on psychopathology.

LIONEL J. BACON, M.A., M.D., B.Ch.(Cambridge), M.R.C.S., L.R.C.P., D.P.H.—Medical Officer of Health, Redditch U.D., Bromsgrove U.D. and Bromsgrove R.D.; Assistant County Medical Officer, Worcestershire. Formerly Senior Assistant Medical Officer of Health, Borough of Heston and Isleworth; and later Temporary Assistant Medical Officer of Health, City of Birmingham.

FILMS ON NUTRITION

WORLD OF PLENTY (1942/3). 35 mm. and 16 mm. Sound "Rotha Productions." 46 minutes.

A film about food, how it is grown and harvested, marketed and eaten. The facts and arguments are presented by means of pictures, maps, diagrams, commentary and interviews. Part 1: *Food as it was* outlines pre-war conditions and problems. Part 2: *Food as it is* explains the measures adopted during the war by Great Britain and America to ensure adequate production and fair distribution of essential foods. Part 3: *Food as it might be* argues that in peace it should be possible to ensure for all men enough of the right kinds of food to develop their full capacity for health and well-being.

THE BIG FOUR. 35 mm. and 16 mm. Sound. C.O.I. for Ministry of Food. 10 minutes.

The four main elements of diet—calcium, protein, iron and vitamins—and the foods which contain them. Humorous Cartoon treatment.

A B C D of HEALTH (1942). 35 mm. and 16 mm. Sound. C.O.I. for Ministry of Food. 9 minutes.

A simple exposition of the importance of the four Vitamins A, B, C, D, of what each contributes to health, and the foods to eat to get them.

The following are in preparation by the Central Office of Information for the Ministry of Food.

THE INTERNATIONAL FOOD SITUATION. 35 mm. Sound. 5-6 Reels. "Rotha Productions."

Follow-up of "World of Plenty." Shows how world food shortages come about and the planning now being made to deal with shortage on an international basis by the Food and Agriculture Organisation.

A further film in the series "The Big Four" will deal much more seriously and fully with the main principles of Nutrition.

A 3-minute trailer for display in all Cinemas insisting on the importance of mothers securing the welfare foods that are available for their children.

The Ministry of Food produces regularly a series of 'shorts' dealing with the basic principles of cooking in the simplest possible fashion. The two latest in the series are being produced in colour and will deal with the making of pickles and the preparation of vegetable dishes. They will be available some time towards the end of this year.

Hlth. Educ. J., 1947, 5, 94—96

REVIEWS

THE NATURE OF DISEASE UP TO DATE, by J. E. R. McDonagh, F.R.C.S. (Heinemann. 1946. Pp. 168. Diags. Price 15s.)

This book is meant to serve as an introduction to a larger text at present in preparation and in which the author expounds his theory as to the nature of disease. The latest theory is a modification of an earlier one that the fundamental physico-chemical basis of disease is dependent upon changes in protein structure. Many of the premises of the author's hypothesis would not be accepted by either physicists or chemists. The author, moreover, has fallen prey to one of his own criticisms of the nature of the existing medical theories by allowing his enthusiasm for the present-day theories of nuclear structure to lead him into an over-simplification of his hypothesis as to the nature of disease. Recent advances in our knowledge of the physical and chemical properties of the blood proteins should enable the author to put to experimental proof his theory in so far as it relates to the blood sedimentation rate. The book is not one for the novice, as a considerable background of medical knowledge and scientific experience is necessary to assess the validity of the author's views.

R. E. TUNBRIDGE.

A HISTORY OF MEDICINE, by Douglas Guthrie, M.D., F.R.C.S. (Nelson. 1945. Pp. 448. Plates 72. Price 30s.)

The author's previous studies in the history of medicine are the best guarantee of the reliability of this volume and, in any case, the reviewer is not competent to comment on its accuracy in detail. It requires no expert knowledge in this field, however, to recognise that this is a book which will be of the utmost educational value. The text is full of fact and yet easy to read, the plates are of absorbing interest and well printed, the bibliographical references numerous and yet unobtrusive, and the index most workmanlike. This is, in brief, a most excellent book, which is absorbing to read and a joy to handle. Medical practitioners and students will no doubt find here the background against which they can place in perspective their modern medical practice. Teachers will find innumerable illustrations to help them to humanise their teaching and bring it into closer relation with health. The bibliophile will find quotations from many unfamiliar texts and illustrations bizarre and beautiful. The 'general reader' will find here a work to while away many happy hours. And what more could one ask of such a volume than that it should provide educational material for the professions, point out new paths of discovery for the book-lover and give joy to the man-in-the-street?

CYRIL BIBBY.

HE CONQUERED DEATH, by Margaret Mason Shaw. (MacMillan. 1946. Pp. 111. Illustrated. Price 8s. 6d.)

This is the story of the life and work of Frederick Grant Banting, the great Canadian scientist, told in such a way as to capture the interest of boys and girls.

A country doctor, a fellow student of Banting, recounts episodes of Banting's life to a group of boys who gather at his house each evening. The boys ask their questions and as the story unfolds much useful and interesting information of historical, scientific and human value is given to them in a subtle way.

The book is attractively bound, has a short bibliography and eleven attractive photographic reproductions.

P. M. TAYLOR.

AN INTRODUCTION TO SOCIAL BIOLOGY, by Alan Dale. (Heinemann. 1946. Pp. 396. Illustrations 200. Price 15s.)

The writer found a link was needed between the teaching of the academic sciences and their manifold applications to everyday life. This discovery was the result of discussion classes with the combined Sixth Forms, the Arts, Science and Modern or General groups of pupils. The need for such classes is constantly being advocated and here, at last, is a book which will stimulate and help the teacher who, like Mr. Dale, will realise that his academic training in biology has left much ground uncovered. For the student, whether in the sixth form at school, as first year undergraduate in medicine or other faculties, as a member of some adult educational group, or as a general reader with a background of some scientific knowledge, the book will be of absorbing interest and use.

The author invites criticism as to how the book may be improved, as it is, to some extent, an experimental approach. Those who know the work of the Central Council for Health Education will at once realise that the Central Council exists for far more than "the elimination of venereal disease" as "its prime aim." This is a damaging and misleading statement on the fifth line of p. 218.

P. M. TAYLOR.

NEW TEACHING FOR A NEW AGE, by A. H. T. Glover. (Nelson. 1946. Pp. 188. Plates 20. Price 15s.)

Many a teacher, reading this book and perusing its wonderful plates, will be inclined to mumble, "That may be all right with the pupils of the Sheffield College of Arts and Crafts, but just imagine trying it with *my* pupils!" And there would be something in their mumble, for certainly few schools would be capable of producing posters, models and murals of this excellence. But, after all, if a thing is worth doing, it is worth doing badly, and here is a thing most eminently worth doing.

Mr. Glover set about applying in practice what many educationists have theorised about for years. By throwing overboard all preconceptions about the school curriculum and timetable, and building up new plans on the basis of a fresh analysis of the functions of a modern school and a fresh enquiry into the pupils' actual interests, he succeeded in arousing in the children a fury of endeavour which produced the most remarkable results. No one could read this book without being convinced that here is an invaluable pointer to what can be done to make the education of children a living thing in intimate relationship with the society to which they belong. And perhaps the question each teacher should ask himself is not, "Could my children do as Mr. Glover's children did?" but "Can *I* do as Mr. Glover did?"

CYRIL BIBBY.

RECREATION REVIEW. (National Playing Fields Association, 71 Eccleston Square, S.W.1. Pp. 50. Illustrated. 1s. quarterly.)

Playing Fields and *Bulletin*, the journals of the National Playing Fields Association and Central Council of Physical Recreation, have now united and brought to birth *Recreation Review*. The first number is attractively set out and contains accounts of recent events in the world of physical recreation such as the N.P.F.A. Conference and the Swedish Physical Training Display. Some articles are by authors who are not afraid to criticise the powers that be

or even the two organisations which have produced the review—a healthy and encouraging feature. *Recreation Review* is informative and should also be a stimulus to thought on the social implications of physical education.

PETER MCINTOSH.

FAMILIES IN TROUBLE, by Charles G. Tomlinson, B.A.(Admin.). (Gibbs, Bamforth & Co. (Luton), Ltd. 1946. Pp. 43. Illustrated. Price 3s. 6d.)

Mr. Tomlinson, in his study of problem families in Luton, has added considerably to our detailed knowledge of this subject, about which there is all too little exact information. He stresses the lack of any true definition of the problem family and adds his own definition to those already in existence—"Those who for their own well-being and the well-being of others require a substantially greater degree of supervision and help over longer periods than is usually provided by existing services."

At a time when the scope of the work of the public health department is being assailed from many directions, here is a new public health field upon which medical officers of health might embark with some of that vigorous pioneering spirit which has characterised their efforts in the past. Tomlinson suggests that health authorities should record all such families; when this has been done, rehabilitation should follow. The first attack should be through the health visitors, which will obviously call for an increase in establishments. Tomlinson, like others, considers that some form of special social worker will be needed and recommends one to every fifteen problem families.

All medical officers of health, from the aspect of public health, will find Tomlinson's careful analysis of great assistance.

FRASER BROCKINGTON.

SHORT NOTICES

MUSIC IN SOCIAL SERVICE. YOUTH AND YOUTH LEADERSHIP. (The National Council of Social Service.)

These are the first two of a series of annotated book lists which the National Council for Social Service hopes to publish.

The books listed have been carefully chosen and the notes written by recognised authorities. They should prove extremely valuable to all engaged in social and youth work.

ENTERTAIN YOURSELVES, by The Combined Arts Group of the National Council of Social Service (1945. Pp. 51. Price 2s. 6d.)

This extremely practical little book is designed to help clubs who wish to include as many members as possible in their entertainments. Help is given in the choice of material and the preparation of a balanced programme. There are useful bibliographies and a chapter on the law in relation to Music and Drama. Every club worker would find this book of value.

CIVIC AFFAIRS, November, 1946. (Documentary Press, Limited. Pp. 25. Illustrated. Price 6d. monthly.)

Aims at presenting with clarity information desired by the citizen from authoritative sources. This issue includes contributions on mayoralty, housing, planning, health education and rating in relation to maternity and child welfare services; it also summarises the recent *Report on Luton* prepared by Dr. F. Grundy.